REMARKS

The Applicants appreciate the Examiner's thorough examination of the subject application. Applicants request reconsideration of the subject application based on the instant amendments and following remarks.

Claims 38, 39, 41, 44, 46, 47, 49, and 55 have been amended. Claims 1-37 and 50-54 have been cancelled without prejudice or disclaimer. Support for the instant amendments can be found in the claims as originally filed and throughout the specification. No new matter has been added by the claim amendments.

Claims 38, 40, and 44-55 have been rejected under 35 U.S.C. 112, second paragraph, as being allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Each of the rejections is traversed.

Claims 38 and 44, as amended, are fully compliant with the requirements of 35 U.S.C. 112, including the definiteness requirements of §112, second paragraph.

As the rejection is understood, claim 40 was rejected under 35 U.S.C. §112, second paragraph, allegedly due to the presence of a functional limitation in a composition claim.

Claim 39 defines a distinct Markush group of compounds, not a single compound. The Examiner's assertion that "[a] compound is a compound irrespective of its functional properties" is inapposite to such a Markush group, where more than one individual compound is claimed. In claim 39, the functional limitation serves to limit the scope of the claim to encompass only those compounds within the scope of its Markush formula that are lipophilic inhibitors of dihydrofolate reductase.

Thus there is nothing improper about the functional limitations in claim 40. The MPEP (eighth edition, revision no. 2) states at 2173.05(g) that "there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper." *In re Swinhart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

Claims 50 and 51 have been cancelled by the instant amendment without prejudice or disclaimer.

Thus, the claims, as amended, are fully compliant with 35 U.S.C. 112, second paragraph, definiteness requirements.

Claim 38 was rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a compound of Formula I wherein the RZnY is a halogen free RCH_2ZnY compound it does not reasonably provide enablement for compounds of formula I wherein RZnY has any or all R groups or R is substituted with halogen.

The rejection is traversed.

Claim 38, as amended, provides methods of synthesis of compounds of Formula I comprising a palladium mediated cross-coupling of an optionally substituted benzylzinc compound with an aryl iodide. That is, the methods of claim 38 include cross-coupling reactions in which RZnY is selected compounds in which R is a benzyl residue of the formula $-CH_2C_6H_{5-i}(R_A)_i$; i is 0, 1, 2, or 3; and Y is Cl, Br, I, or triflate.

The specification provides working examples of cross-coupling reactions in which the benzylzinc reagent, RZnY, is substituted with halogen. More particularly, Examples 2, 3, 4, 5, and 6 provide methods of synthesis of compounds of Formula I in which $(R_A)_i$

is mono-chloro, di-chloro, and mono-fluoro. Thus, the methods of synthesis recited in the specification tolerate a variety of functional groups including halogen.

Thus, claim 38, as amended, is fully supported by the original specification such that one of ordinary skill in the art can make and use the methods of synthesis of compounds of Formula I.

Claims 44-55 were rejected under 35 U.S.C. 112, first paragraph, because the specification,while being enabling for treating pneumonia caused by pneumocystis carinii infection, does not reasonably provide enablement for treating any or all parasitic infection or disorder in mammals including treating any or all immuno-compromised mammals and those with any or all autoimmune disorders generically embraced in claim 44 including those specifically recited in claims 45-55.

Claim 44, as amended, provides methods of treating or preventing to a *Pneumocystis carinii* infection in a patient, which subject matter, the office action indicates as being supported by the specification.

Claims 45-49 and 55 depend from claim 44 and are also enabled by the specification. Claims 50-55 have been cancelled without prejudice or disclaimer.

Claims 39-43 were rejected under 35 U.S.C. 102(b) as being allegedly anticipated by Broughton et al.

Claims 39-43, as presently presented, provide compounds in which R_3 is hydrogen. That is, the compounds of claims 39-43 comprise an unsubstituted 2,4-diamino-quinazolin-6-yl residue.

In contrast, each of the compounds recited in Broughton comprise a 5-alkyl substituent on the quinazoline ring system. That is, R_1 is methyl or ethyl for each of the recited compounds.

Thus, compounds of claims 39-43 are not anticipated by the Broughton compounds.

The compounds provided by claim 39 do not encompass the above identified structural element of the Broughton compounds. Moreover, one of ordinary skill in the art would not have had motivation or a reasonable expectation of obtaining a desirable therapeutic effect by excluding the structural feature common to all of the Broughton compounds necessary to arrive at the compounds of claim 39. Thus, the instantly claimed invention would not have been obvious from Hepworth.

For instance, it is well-known that to establish a *prima facie* case of obviousness, three basic criteria must be met: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference(s) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143.

There is no suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the cited reference to make the claimed invention, nor is there a reasonable expectation of success.

Thus, claim 39, as amended, are patentable over Broughton. Claims 40-43 depend from claim 39, and are therefore also patentable over Broughton. Applicants respectfully request withdrawal of the rejections and reconsideration of the claims.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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